Trachinotus blochii (Lacepède, 1801)

A. K. Abdul Nazar, R. Jayakumar and Ritesh Ranjan

IDENTIFICATION

Order	:	**Perciformes**
Family	:	**Carangidae**
Common/FAO Name (English)	:	**Snubnose pompano**

Local Names: Katattitaka, Ladagoo **(Marathi)**; Manjavela, Peeyada, Valodivatta **(Malayalam)**; Sevani parai **(Tamil)**; Sanduva paara, Kootili **(Telugu)**

MORPHOLOGICAL DESCRIPTION

The snubnose pompano has a fusiform body shape, exhibiting a general oval shape, elongated towards the posterior end. Gill rakers are 9-12. Body ovate in young to subovate in large adults and compressed with depth of 5 cm; profile of snout broadly rounded, in adults becoming nearly straight to interorbital region; both jaws with bands of small villiform teeth; tongue toothless (except 2 or 3 slender teeth rarely on small specimens). Two separate dorsal fins, with first six short spines (the anterior spines often becoming completely embedded in large adults) followed by one spine and 18 to 20 soft rays; two anal fins, with first two detached spines (becoming embedded in large adults) followed by one spine and 16 to 18 soft rays; height of second dorsal fin lobe 35 to 60 percent of fork length in specimens of 10-40 cm fork length; pelvic fins shorter than pectoral fins, lateral line

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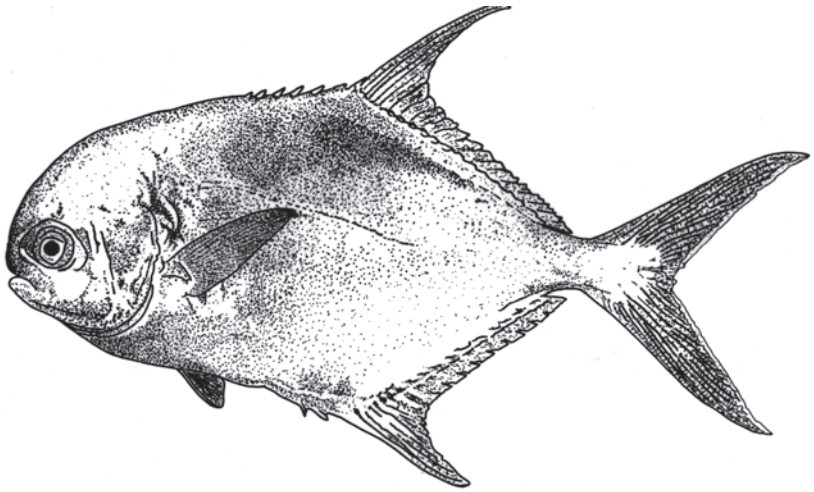

only slightly irregular, weakly convex above pectoral fin, becoming straight posteriorly. No scutes or caudal peduncle grooves. First pre-dorsal lobe shaped like an inverted tear-drop or oval shaped, this character is easily observed by a simple dissection along mid line of nap, supra occipital bone of skull thin and blade like in adults. Vertebrae 10+14.

Colour: Head and body generally silvery, blue grey above, paler below; large adults occasionally golden yellow especially snout and lower half of body. Second dorsal fin dark, lobe of fin dusky orange; anal fin dusky dirty orange, lobe with a brownish anterior margin; caudal fin dark to dirty orange with leading edges of fin darkest. Pelvic fins white to dirty orange, pectoral fins dark. Juveniles silvery with pale fins except lobes of median fins and anterior half of pelvic fins which are brownish to dirty orange.

PROFILE

GEOGRAPHICAL DISTRIBUTION

Snubnose pompano are distributed throughout the Indian Ocean. It is also found in the Indo-West Pacific, from southern Japan to northern Australia and Lord Howe island, and eastward to Samoa, Tonga, Marina and Marshall islands. In addition, this species has been reported from Atlantic Ocean. In India, this species is distributed all along the Indian coast from Gujarat to West Bengal including Andaman and Nicobar Island.

HABITAT AND BIOLOGY

Trachinotus blochii inhabits shallow, coastal waters over coral and rocky reefs. Juvenile snubnose pompano are commonly found in sandy areas or near sandy-clay estuaries. It is occasionally observed

in small schools. Snubnose pompano is reported in depths from 0.4 to 55 m, however invariably they are found in areas of less than 7 m depth. Their maximum recorded total length is 65 cm (5 kg).

Trachinotus blochii diet consists of crabs, mussels and worms. It feeds mainly on fish followed by crab, shrimp, squid, gastropod and bivalve. At the juvenile stage they tend to group together, becoming solitary as adults and they feed on sand molluscs and other invertebrates. Juvenile pompano is apparently an opportunistic feeder. It is observed to be a planktivore, primarily consuming copepods and some benthic organisms including polychaetes.

PRODUCTION SYSTEMS

BREEDING IN CAPTIVE CONDITIONS

Breeding and seed production of *Trachinotus blochii* was successfully standardised at Mandapam Regional Centre of ICAR-CMFRI. Adults or sub-adults of *Trachinotus blochii* were collected from wild and reared in cages or tank for broodstock development. Fishes were fed on low value fish and squid supplemented with vitamins and mineral premix @1 % of the food ad libitum daily. The fishes were cannulated on reaching 1.0 kg size to assess the gonadal maturity as well as sex. Fishes were conditioned through photo-thermal regulation to accelerate the gonadal maturity. The matured brooders spawned naturally or by hormonal induction. However, induced breeding was most commonly practiced. Once the intra-ovarian eggs attained 450-500 μm sizes, fishes were induced to spawn by using human chorionic gonadotropin (hCG) at the rate of 350 IU/kg body weight for male and female as a single dose. Alternatively, gonadotropin-releasing hormone (GnRH) was used at a dosage of 150 μg/kg body weight in both sexes. Snubnose pompano generally spawned after 36-48 h and 18-36 h of hCG and GnRH injection respectively. The buoyant fertilized eggs were scooped gently using 500 μm net. The collected eggs were incubated @ 200-500 eggs/l in glass jar aquarium or in tank. The hatching of eggs occurred 18 to 24 h after fertilization. Subsequent spawnings of snubnose pompano were achieved at an interval of 30-35 days, when maintained in the RAS with photo-thermal regime.

LARVAL REARING

Green water technique was employed for larval rearing. The newly hatched larvae were stocked at a density of 5 larvae per litre of water. The tanks were provided with mild aeration and green water i.e., *Nannochloropsis occulata* at a cell density of 10^5/ml. The mouth of the larvae opened on 3rd day of post-hatch (dph) with a mouth size of around 230 μm. The larvae were fed from 3 dph to 10 dph with enriched rotifers at a density of 5-6 rotifers/ml, wherever possible wild collected copepods were added as supplements. Enriched *Artemia* nauplii were provided at a density of 1-2/ml during 8-19 dph. Weaning to larval inert feeds began on 15 dph. From 25 dph onwards, feeding was entirely on larval inert feeds. The metamorphosis of the larvae started from 18 dph and all the larvae metamorphosed into juveniles by 25 dph. Critical stages of larval rearing where maximum mortality occurred, was during 3-5 dph and subsequent mortalities were negligible. The water

exchange was practically zero until 7 dph and from 8-14 dph, it was gradually increased from 10-100 % daily.

NURSERY REARING

Nursery rearing of fingerlings was carried out for a period of 2 to 3 weeks for growing them to stockable sizes of 2 g and for grow out culture in cages, it was reared for 4-5 weeks till the juveniles reached a size of about 15 g. Two production systems were used for the nursery stage - indoor and outdoor. The indoor system used tanks of different sizes, while the outdoor system used hapa in ponds as well as in cage or directly the pond itself.

INDOOR SYSTEM

Fry of 25-30 days old were reared in indoor tank system till it reached a size of 2.5-3.8 cm. After 25-30 dph, the fry were fed with artificial feed of 800 μm size. Thereafter, fingerlings were fed with progressively larger size ranges of floating extruded pellet feeds. Daily water exchange of 100 percent was recommended. After 55 dph, the fingerlings with size ranging from 2.5-3.8 cm were supplied to farmers for stocking in hapas or ponds or cages for further nursery rearing and grow-out thereafter.

OUTDOOR SYSTEM

The nursery rearing of juveniles was carried out in tanks or hapas / pens fixed inside ponds or sea cages fitted with smaller mesh nets. When the nursery rearing was carried out in cages or in hapas/ pens inside ponds, the nets were cleaned or brushed daily to maintain the free flow of seawater. When indoor nursery was practiced, proper water quality and optimum aeration was maintained in the tanks. Suitable sized formulated floating pellet feeds (1000-1800 μm diameter) were provided during nursery rearing. Floating pellet feed containing 40-50 % crude protein and 10 % crude fat were more suitable for successful nursery rearing. For reducing the grow out period of pompano from 8 months to 4 months, nursery rearing was continued until the fish reached 100 g size in dedicated nursery pond/cage.

GROW-OUT

Snubnose pompano are cultured in ponds, pens and cages. In Vietnam, cage farming of snubnose pompano is well developed by feeding with trash fish and extruded pellet feeds. In India, ICAR-CMFRI has undertaken farming trials in freshwater ponds, brackishwater ponds and cages installed in the sea. Among all methods, farming of snubnose pompano in low saline brackish water ponds yielded good harvest.

The fishes grew from 2.5-3.0 cm size of weight 1.5-2.0 g to 250-300 g after 240 days with a survival of 45 % in freshwater culture (zero salinity) in earthen pond. In brackish water, it grew to 450-500 g after 240 days culture with a survival of 94 %. The fishes were fed with floating pellet feed containing 32 % crude protein and 6 % crude fat. In pond farming, it is advisable to stock 1-1.5

nos./m^3. Water quality parameters like optimal algal bloom, pH and dissolved oxygen were maintained by exchanging 10 % of the water once a week for the initial period of three months; 20 % per week after 3 months and 30 % per week after 6 months. If water colour was too dark due to algal bloom, the quantum of water exchange was proportionately increased. Use of paddle wheel aerators was necessary whenever the dissolved oxygen level was lower than 4 mg/l.

Open sea cage farming was attempted in the Gulf of Mannar side of Vedalai Village, Ramanathapuram District, Tamil Nadu, India. About 4,000 fingerlings of 2.5 to 3.0 cm size weighing 1.5 to 2.0 g were stocked initially in hapas (10 m × 10 m) erected in the sea. Fishes were fed with chopped low value marine fishes. Once the pompano fingerlings attained 25 g they were shifted to galvanized iron cages of dimensions 4 m × 4 m × 3 m. Fishes reared in the cage were fed with chopped, low value fishes. After 240 days of culture, the fishes attained only 250-275 g with a survival rate of 72 %. A stocking density of upto 20 nos./m^3 is possible in sea cages.

FOOD AND FEEDING

Snubnose pompano are carnivorous in nature. They require feed containg 45 % protein for optimal growth. They are fed on fresh/frozen trash fish or artificial pellet.

GROWTH RATE

The fish grew from 2.00±0.04 g to 464.65±10.25 g in brackish water ponds whereas it grew to 250-275 g in sea cages during a culture period of 240 days.

DISEASES AND CONTROL MEASURES

Several types of diseases associated with poor water quality management are noticed in the adults, juveniles and fingerlings. Among the microbial diseases, vibriosis, a bacterial disease causing significant losses of fish in farms is frequently encountered. Vibriosis resulted in severe skin, muscle, fin, eye and internal organ damage of the fish. Diseases caused by protozoans and metazoan ectoparasites resulted in severe health issues in juveniles and adult pompano. Proper treatment of hatchery and farm water and biosecurity measures addressed most diseases. Mass mortalities in the farm occurred mainly due to the outbreak of vibriosis and protozoan parasites.

PRODUCTION, MARKET AND TRADE

PRODUCTION

Commercial production of snubnose pompano appeared to have begun in Asia in the early 1990s in Singapore, with much of the production destined for markets in Hong Kong by 1995. By the later part of the 2000s, production had expanded in China, and today it is reported to be over 1,10,000 t annually. Outside China, significant production has been recorded in Vietnam and Indonesia. In Vietnam, approximately 700 t a year of snubnose pompano have been produced by

marine farms. In recent years, limited amounts of snubnose pompano production has commenced in other Asian countries, including Malaysia, India and Philippines.

MARKET AND TRADE

The availability of snubnose pompano from the wild is scarce and irregular, and hence the growing demand can be met only through aquaculture. In the international market, the dockside price of snubnose pompano averaged to US$ 8 /kg, though there is significant country variation. Indeed, in India, the current price of snubnose pompano is about US$ 2.78 /kg at the fish landing centres and around US$ 5.30 /kg in the retail markets.

CHALLENGES TO MARICULTURE

The Mandapam Regional Centre of ICAR-CMFRI has developed the technology for broodstock development, larval rearing, nursery rearing and grow-out culture of this species. However, there are several researchable issues which need to be sorted out for this species in India.

Year round spawning and seed production
High density larval rearing
Enhancement of larval survival
Cage culture of the species under different environmental parameters
Mixed culture prospects of the species with shrimp
Standardization of feed for grow out culture (artificial feed vs low value fish)
Disease management

FUTURE PROSPECTS

Snubnose pompano is one of the topmost candidate species for mariculture, owing to its fast growth, good meat quality and high market demand. This species is cultured in varying salinity, which is suitable for coastal mariculture in India. Additionally, the seed production technology is available in India. Thus, this species is a good candidate species for mariculture if the seed production and farming technology percolates to the aquaculture industry.

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